AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for efficient frontier supplementation in multi-objective portfolio ~~optimization for use in investment decisions based on competing objectives and a plurality of constraints constituting a portfolio problem~~analysis, the method comprising:

~~performing a first multi-objective optimization process, based on competing objectives, to generate an efficient frontier of possible solutions;~~

generating a non-dominated solution set comprising a first efficient frontier in a portfolio performance space having at least three-dimensions using one of an evolutionary algorithm and optimization processing by using a computing device;

~~observing the generated efficient frontier;~~

~~based on the observing,~~ identifying ~~an area of~~ at least one region having a gap in the at least three-dimensions of the first efficient frontier using a visualization tool~~in which there is a gap~~;

interactively placing at least one target in the at least one region using the visualization tool; and

~~effecting a gap filling process by which the efficient frontier is supplemented in the area of the gap, the efficient frontier being used in investment decisioning.~~

generating supplemental solutions to the first efficient frontier using a Target Objectives Genetic Algorithm (TOGA) to create a second efficient frontier, the second efficient frontier being used in investment decisions.

2-4. (Canceled)

5. (Currently Amended) The method of claim 1, further including the step of ~~wherein the~~ selecting at least one portfolio from the ~~generated~~ second efficient frontier~~, includes:~~

~~selecting the at least one portfolio in the area that was filled in by the gap filling process.~~

6. (Currently Amended) The method of claim 1, wherein the ~~effecting the gap filling process by which the efficient frontier is filled in the area of the gap~~TOGA further ~~including~~includes the steps of:

~~providing~~ accepting a set of target vectors; and

generating a series of chromosomes, evaluated on the basis of the accepted target vectors, over multiple generations.

7. (Currently Amended) The method of claim 6, wherein the ~~method~~ TOGA further includes the step of evaluating ~~the~~ a fitness of each chromosome until a population with an acceptable fitness is determined so as to fill in the ~~identified~~ gap.

8-12. (Canceled)

13. (Currently Amended) The method of claim 1, wherein the gap is ~~an area~~a region that is sparsely populated by possible solutions.

14. (Canceled)

15. (Currently Amended) A system for efficient frontier supplementation in multi-objective portfolio ~~optimization for use in investment decisions based on competing objectives and a plurality of constraints constituting a portfolio problem~~analysis, the system comprising:

an efficient frontier generation portion that generates a non-dominated solution set comprising a first efficient frontier in a portfolio performance space having at least three-dimensions using one of an evolutionary algorithm and optimization processing;~~performs a first multi-objective optimization process, based on competing objectives, to generate an efficient frontier of possible solutions;~~

a visualization tool by which a user identifies at least one region having a gap in the at least three-dimensions of the first efficient frontier and interactively places at least one target in the at least one region;~~observes the generated efficient frontier, based~~

~~on the observing, the user identifying an area of the efficient frontier in which there is a gap;~~ and

a gap filling portion that generates supplemental solutions to the first efficient frontier using a Target Objectives Genetic Algorithm (TOGA) to create a second efficient frontier, the second efficient frontier being used in investment decisions.~~, the gap filling portion effecting a gap filling process by which the efficient frontier is supplemented in the area of the gap, the supplemented efficient frontier being used in investment decisioning.~~

16-18. (Canceled)

19. (Currently Amended) The system of claim 15, wherein the gap filling portion ~~selecting~~ selects at least one portfolio from the ~~generated~~ second efficient frontier~~. includes:~~

~~selecting the at least one portfolio in the area that was filled in by the gap filling process.~~

20. (Currently Amended) The system of claim 15, wherein the ~~effecting the gap filling process by which the efficient frontier is filled in the area of the gap~~TOGA further ~~including~~includes:

~~providing~~ accepting a set of target vectors; and

generating a series of chromosomes, based on the accepted target vectors, over multiple generations.

21. (Currently Amended) The system of claim 20, wherein the ~~system~~ TOGA further includes evaluating ~~the~~ a fitness of each chromosome until a population with an acceptable fitness is determined so as to fill in the ~~identified~~ gap.

22. (Canceled)

23. (Currently Amended) A computer readable medium for efficient frontier supplementation in multi-objective portfolio ~~optimization for use in investment decisions based on competing objectives and a plurality of constraints constituting a portfolio problem~~analysis, the computer readable medium comprising:

a first portion that generates a non-dominated solution set comprising a first efficient frontier in a portfolio performance space having at least three-dimensions

using one of an evolutionary algorithm and optimization processing;~~performs a first multi-objective optimization process, based on competing objectives, to generate an efficient frontier of possible solutions;~~

a visualization tool by which a user identifies at least one region having a gap in the at least three-dimensions of the first efficient frontier and interactively places at least one target in the at least one region;~~observes the generated efficient frontier, based on the observing, the user identifying an area of the efficient frontier in which there is a gap;~~ and

a second portion that generates supplemental solutions to the first efficient frontier using a Target Objectives Genetic Algorithm (TOGA) to create a second efficient frontier, the second efficient frontier being used in investment decisions.~~, the second portion effecting a gap filling process by which the efficient frontier is supplemented in the area of the gap, the supplemented efficient frontier being used in investment decisioning~~.

24. (Canceled)